REMARKS

The Applicant respectfully requests reconsideration of the subject application, as amended.

Rejections under 35 U.S.C. 102

Claims 1, 8, 16 and 27 were rejected under 35 USC 102(e) as being anticipated by Vogel (U.S. 6,075,788). Applicant respectfully traverses the rejection. Applicant has amended claims 1 and 8 to clarify the relationship between a packet engine packet and a frame within a TDM signal.

With regard to claim 1 and 8, among the differences, claims 1 and 8 recite "a packet engine unit coupled to the deframer unit, the packet engine unit to receive the payload, the overhead data and the frame alignment data and to generate a number of packet engine packets, wherein a payload of a packet engine packet stores one frame within the TDM signal such that the packet engine packets include the payload and the frame alignment data." (emphasis added).

With regard to claims 16 and 27, among the differences, claims 16 and 27 recite "placing the TDM signal into packet engine packets based on the frame boundaries within the TDM signal, wherein the overhead data, the payload data and the frame alignment data are within packet engine packets, such that each packet engine packet corresponds to a frame within the TDM signal." (emphasis added).

The Office Action indicated that these limitations are disclosed by Vogel in figures 3 and 4 and columns 2-3. In particular, the Office Action equated the "Enhanced UTOPIA Interface block 42" with "the packet engine unit" and that "the packet engine packets" were illustrated by figure 4 of Vogel.

The system in Vogel "enables data to be transmitted over a SONET communications link in a variety of standard and non-standard transmission modes."

Vogel at column 4, lines 1-3. The transmission modes include the transmission of ATM cells in SONET, PPP frames in ATM cells in SONET, PPP frames from a UTOPIA in SONET and PPP frames directly in SONET. See Vogel at column 4, lines 3-8. Vogel discloses the placement and extraction of ATM cells into SONET frames by the Enhanced UTOPIA Interface block 42. See Vogel at column 6, lines 1-24.

However, Applicant respectfully submits that Vogel does not disclose any type of packet generation along the frame boundaries of a TDM signal. In particular, Applicant respectfully submits that the system of Vogel does not disclose generation of packets within a line card of a network element wherein the payload of the packets store one frame of a TDM signal. In contrast, the system in Vogel extracts the ATM cells from the SONET payloads and processes such cells at the ATM level. See Vogel at column 6, lines 16-24.

Moreover, Applicant respectfully submits that Vogel does not disclose the placing of frame alignment data of a TDM signal into packets. In particular, Applicant respectfully submits that Vogel does not disclose the placing of frame alignment data into a packet engine packet that includes one frame of the TDM signal, as set forth in such claims. Accordingly, Applicant respectfully requests that the rejection of these claims be withdrawn and that these claims be passed to allowance.

Rejections under 35 U.S.C. 103

Claims 2-7, 9-15, 17-26 and 28-38 were "rejected under 35 USC 103 as being unpatentable over Vogel. Office Action at ¶5. Applicant respectfully traverses the rejection. Applicant has amended claims 21 and 33 to clarify the relationship between a packet engine packet and a frame within a TDM signal.

With regard to claims 21 and 33, among the differences, claim 21 and 33 recite "placing the first TDM signal into first packet engine packets based on the frame boundaries within the first TDM signal, wherein a payload of a packet engine packet

stores one frame within the TDM signal . . . [and] placing the second TDM signal into second packet engine packets, independent of frame boundaries within the second TDM signal." (emphasis added). In light of the remarks set forth above, Applicant respectfully requests that the rejection of these claims be withdrawn and that these claims be passed to allowance.

With regard to claims 2-7, 9-15, 17-20, 22-26, 28-32 and 35-35, because such claims depend from and further define claims 1, 8, 16, 21, 27 and 33, Applicant respectfully requests that the rejection of such claims be withdrawn and that these claims be passed to allowance.

New Claims

Additionally, Applicant has added new claims 39-46. With regard to claims 39-40, in addition to the remarks set forth regarding the claims from which claims 39-40 depend, Applicant respectfully submits the following remarks. Among the differences, such claims recite "wherein the frame alignment data includes a boundary of a superframe, the superframe to include a number of frames within the TDM signal." As set forth above, Applicant respectfully submits that Vogel does not disclose or suggest the placement of frame alignment data for a TDM signal to packet engine packets. Further, Applicant respectfully submits that Vogel does not disclose or suggest the placement of data related to a boundary of a superframe for a TDM signal. Accordingly, Applicant respectfully requests that such claims are patentable in light of the cited reference. With regard to claims 41-46, in light of the remarks set forth above, Applicant respectfully submits that such claims are patentable in light of the cited reference.

Please charge any additional fees due, if any, to Deposit Account 02-2666.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Paragraph 56 on page 19 has been amended as follows:

[0056] The operation of the portions of line card 502 illustrated in Figure 6 will now be described in terms of unframed-based operations. In other words, operations will be described within line card 502 such that the frame boundaries of the incoming TDM signals are not located and such that the outgoing TDM signals are not framed. Even though described in terms of not framing the incoming signals, embodiments of the present invention are not so limited. In one embodiment, line card 502 may still frame the incoming signal, but are not required for the subsequently described operations. For example, ingress unit 620 may still frame to ease the processing burden of another network element that receive this data and may [required] require framing of such data.

Paragraph 81 on page 27, has been amended as follows:

[0081] For example, embodiments of the present invention illustrated with Figures 7 and 8 were described with regard to a DS1 superframe. However, embodiments of the present invention are not so limited, as other transmission standards can be employed. For example, the E1 standard could be used. Therefore, the overhead bits illustrated in Figures 7 and 8 would become overhead bytes. In one such embodiment, the overhead bytes would be included within the payload of the signal.

IN THE CLAIMS:

Claims 1, 8, and 21 have been amended and new claims 39–46 have been added.

1. (Amended) A line card in a network element comprising:

a deframer unit to receive a Time Division Multiplexing (TDM) signal, the TDM signal including a payload and overhead data, the deframer to generate frame alignment data based on the overhead data;

a packet engine unit coupled to the deframer unit, the packet engine unit to receive the payload, the overhead data and the frame alignment data and to generate a number of packet engine packets, wherein [the] a payload of a packet engine packet [packets representing a] stores one frame within the TDM signal such that the packet engine packets include the payload and the frame alignment data; and

a packet processor coupled to the deframer unit, the packet processor to receive the packet engine packets and to generate network packets based on the packet engine packets.

8. (Amended) A network element comprising:

a number of line cards, each of the number of line cards including:

a deframer unit to receive a Time Division Multiplexing (TDM) signal, the TDM signal including a payload and overhead data, the deframer to generate frame alignment data based on the overhead data;

a packet engine unit coupled to the deframer unit, the packet engine unit to receive the payload, the overhead data and the frame alignment data and to generate a number of packet engine packets, wherein [the] a payload of a packet engine packet [packets representing a] stores one frame within the TDM signal such that the packet engine packets include the payload and the frame alignment data; and

a packet processor coupled to the deframer unit, the packet processor to receive the packet engine packets and to generate network packets based on the packet engine packets; and

at least one control card coupled to the number of line cards.

21. (Amended) A method comprising:

receiving a first Time Division Multiplexing (TDM) signal that includes overhead data and payload data;

determining frame boundaries within the first TDM signal;

placing the first TDM signal into first packet engine packets based on the frame boundaries within the first TDM signal, wherein a payload of a packet engine packet stores one frame within the TDM signal;

receiving a second TDM signal;

placing the second TDM signal into second packet engine packets, independent of frame boundaries within the second TDM signal; and

generating network packets from the first and second packet engine packets using a same packet processor.

39. (New) The line card of claim 1, wherein the frame alignment data includes a boundary of a superframe, the superframe to include a number of frames within the TDM signal.

40. (New) The network element of claim 8, wherein the frame alignment data includes a boundary of a superframe, the superframe to include a number of frames within the TDM signal.

41. (New) An apparatus comprising:

a packet processor to receive network packets, wherein payloads of the network packets are to include portions of a number of packet engine packets, the packet processor to extract the payloads of the network packets;

a packet engine unit coupled to the packet processor, the packet engine unit to receive the payloads of the network packets, the packet engine unit to reconstruct the number of packet engine packets, wherein a packet engine packet corresponds to a frame of a TDM signal and includes frame alignment data for the TDM signal, the frame alignment data to include a boundary of a superframe, wherein the superframe is to include a number of frames within the TDM signal; and

a framer unit coupled to the packet engine unit, the framer unit to receive the frames of the TDM signal and the frame alignment data, wherein the framer unit is to reconstruct the superframes within the TDM signal.

42. (New) The apparatus of claim 41, wherein the TDM signal includes a Digital Signal (DS)-1 signal.

43. (New) The apparatus of claim 41, wherein the TDM signal includes a Digital Signal (DS) – 3 signal.

44. (New) The apparatus of claim 41, wherein the TDM signal includes an E1 signal.

45. (New) The apparatus of claim 45, wherein the packet processor compresses the DS0 signals.

46. (New) The apparatus of claim 41, wherein the packet processor separates Digital Signal (DS) – 0 signals from within the TDM signal.